iStalk

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Concept and Motivation

- Use passive tracking of wifi devices to seed information for interactive targeted physical advertisements such as billboards
- Integrate with social networking platforms to tie in to existing information-rich targeted advertisement platforms

- Increase the effectiveness of physical advertising spaces by intelligently displaying targeted ads to interested consumers
- Demonstrate the ability for organizations to track consumer locations, identities, and preferences using passive techniques

Competitive Analysis

immersive Labs™

- Uses anonymous video processing
- Plays different ads to men and women
- Gauges user interest based on eye tracking

AeroScout®

- Real time wireless asset tracking
- Mostly healthcare applications
- Uses wifi tags

- Sends targeted advertisements to phones over Bluetooth

Requirements

- Track locations and relative movements of consumers through wifi, even when not associated with an access point
- Update a database of consumer preferences based on location, eye-tracking and facial recognition
- Offer a personalized, interactive consumer experience once the consumer has been attracted to our billboards
- Offer a mobile application that integrates with social networking platforms, allowing us to collect online footprint and more accurately track the user

Technical Specifications

Hardware

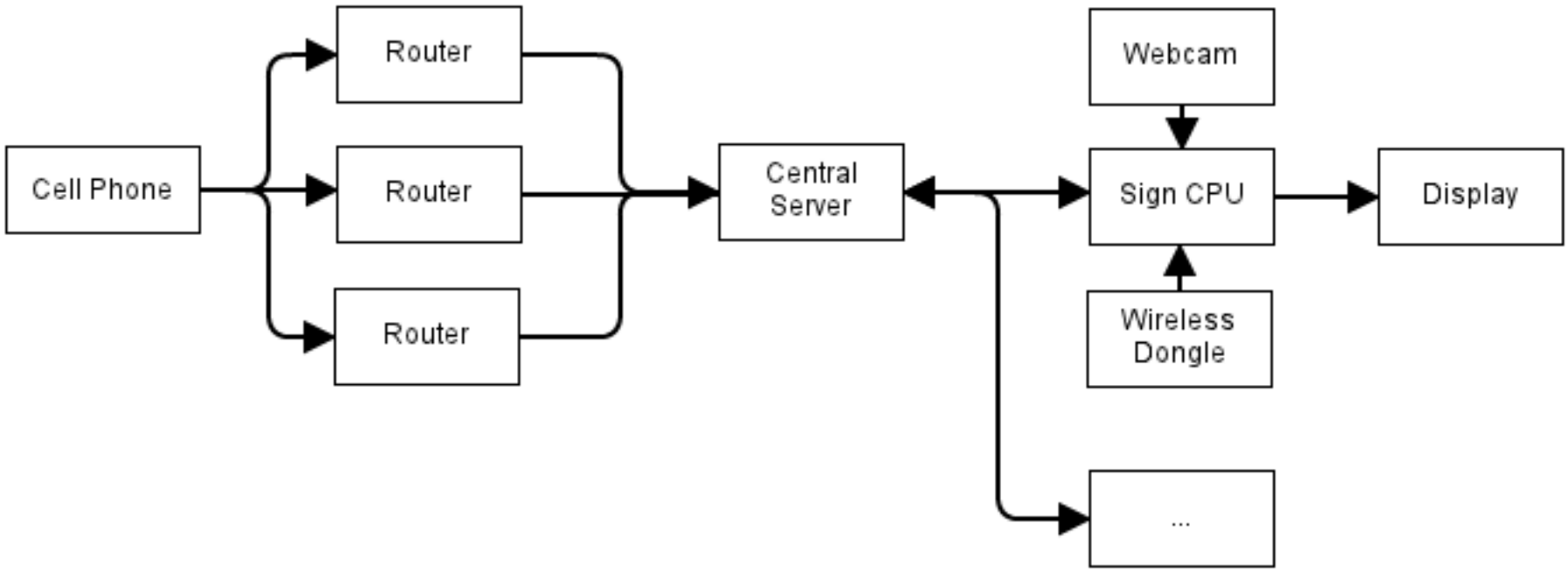
- Intel digital signage displays
- Linksys routers running a modified linux distribution
- USB wifi adapters

Software

- DD-WRT Linux-based router firmware
- Custom OpenGL and OpenCV based interface
- Triangulation based on 802.11 RSSI

TOUCH&GO messenger® 46P

Architecture



Anticipated Risks and Risk Mitigation

18-549 demo room will be a noisy signal environment	Calibrate our sensors in a similar test environment.
Will need to track many entities at once relatively accurately	Ramp up scope of test environment early on
Resolution of wifi-based location tracking might be too low	Center of mass approximation or probabilistic localization
RSSI can be unreliable and vary with conditions	Heuristics for RF degradation indoors Learned noise parameters "Fingerprinting"
Insufficient dataflow from phones	Actively ping known clients Mobile app which "phones home"

Questions?